



Technical Progress Report

January - August 2017



Wildlife Reserves Singapore Group



ZOO HEIDELBERG



Jewelmer



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 Kataala Foundation, Inc.
 Puerto Princesa, Palawan, Philippines
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TECHNICAL PROGRESS REPORT

COUNTRY: PHILIPPINES

PROJECT TITLE: PHILIPPINE COCKATOO CONSERVATION PROGRAMME
In-situ Conservation Project

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PROJECT SITES: Palawan, Philippines

PROJECT COOPERATORS:

Department of Environment and Natural Resources (DENR)
Municipal Government of Narra, Palawan, Philippines
Municipal Government of Dumarán, Palawan, Philippines
Municipal Government of Balabac, Philippines
Bgy. Pandanan Government, Balabac, Palawan, Philippines
Local Protected Area Management Committees (LPAMC)
Protected Area Management Board-RIWS (PAMB-RIWS)
Palawan Council for Sustainable Development Staff (PCSDS)
Jewelmer Corporation Inc.
Iwahig Prison and Penal Farm (IPPF)
Concerned agencies and authorities

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EXECUTIVE SUMMARY

Objective 1: Conservation of cockatoo population on Pandanan and Bugsuk Islands, Balabac

- Highest roost count since inception of the project was reached with 254 individuals recorded.
- In May a temporary roost with a maximum of 33 birds was established in northern Pandanan, and another temporary roost site was occupied in Sebaring, Bugsok in August. Between 140 and 193 cockatoos were observed during this time.
- In February, 17 food-providing trees were bearing fruits or flowers in abundance, the highest number within the reporting period.
- A survey in August indicated that cockatoos were not raiding rice paddies within shifting cultivation areas on Pandanan.
- Fifteen nest trees were active during the breeding season. The 15 pairs produced 45 eggs.
- On Pandanan, 26 hatchlings were banded and fledged successfully between mid of April and the first week of May. For the first time, three nestlings could be banded also on neighboring Bugsuk Island, while eight more fledged before they could be ringed.
- Wardens continued patrolling in Pandanan throughout the reporting period, often in combination with nest monitoring during the onset of the breeding season in the first weeks of the year.
- In January indications of treasure hunting were observed near the northern coast of Pandanan. Shifting cultivation was noted during the dry part of the year, particularly in the southwestern portion of the island.
- In June, 63 households were visited by the team to inform residents on wildlife laws and remind parents to educate their children not to use slingshots. No wildlife kept as pets were recorded. Shifting cultivation areas were mapped in August; of the 19 sites, eight also affected primary forest.
- On January 17, a Katala Fun Day was organized for 53 students of Malinsuno Elementary School.
- Discussions with local stakeholders in July focussed on effects of shifting cultivation and reached 23 households.

Objective 2: Conservation of cockatoo population on Rasa Island, Narra

- The traditional roost site is now almost completely abandoned after being occupied for at least 19 years. No birds were recorded in January and February, only six and five birds in March, and April/May respectively.
- Up to seven temporary roost sites are utilized by cockatoos, most of them outside of Rasa. A relatively stable site in the center of Panacan village accommodated 111 birds in August, a small island close to mainland Palawan up to 43 birds in February, and another small island 63 birds in August.
- Food supply on Rasa was abundant throughout the reporting period.
- Largest foraging flocks are routinely observed crossing from and to Rasa at the narrowest point to the main island, with exit counts up to 203 birds in July, the highest count by far since birds started again foraging on the main island.

- Heavy rains resulted in an abundant food supply already by the end of 2016 and the highest number of breeding pairs, laid eggs, hatchlings and fledglings since the start of the project almost twenty years ago! Forty-seven pairs got into breeding condition.
- Of 96 hatchlings, a record 90 birds fledged, although only 85 were banded, and five fledged without being ringed.
- Mite infestation was affecting some clutches. Hatchlings and nest substrates were treated with acaricides.
- Although the sequencing results from Malaysia indicated that cockatoos from Rasa were negative for the virus, we were still alarmed by the positives from captive Budgerigars from Narra and Puerto Princesa. We sent communication to Palawan Council for Sustainable Development (PCSDS) and the DENR-BMB.
- Samples from 2017 are still processed by University of the Philippines Diliman. We are currently seeking additional funding for the additional screening.
- As short-term activities to address the PBF issue we suggest the following:
 - Increase of permitted sample numbers in each project site.
 - Intensive sampling of pet parrots in Narra.
 - Increased advocacy within PCSDS to highlight the severity of the matter.
 - Full blood samples will be taken, instead of feather samples. Storage of samples in absolute ethanol, instead of EDTA. Possibly Simon Tollington from NEZS will capacitate KFI staff (and possibly personnel from concerned government agencies) in sampling procedures.
 - Additional funding is currently sought to accommodate more reliable screening, particularly of samples from Rasa and pet parrots from Narra.
- Patrolling on Rasa continued throughout the reporting period. No extension of coconut plantations was noted.
- Monitoring of marine harvests in the vicinity of rasa continued, particularly for sea cucumbers.
- On June 30, the 11th Katala Festival was held in Narra. A photo exhibit featured vital ecosystem services, like provision of food, erosion control, carbon sequestration, or pollination. Several competitions with environmental content were conducted in the municipal's gym.
- A total of 489 students from six schools in Narra participated in introduction to birdwatching.

Objective 3: Conservation of cockatoo population on Dumaran Island, Dumaran

- Numbers of roosting cockatoos increased slightly towards the end of the breeding season, reaching 20 individuals in August, when six of the newly released cockatoos joined the roost site as well.
- Only three pairs attempted breeding in this year's breeding season. Seven eggs were laid of which five turned out to be infertile. Two hatchlings were banded and fledged successfully.
- On January 27, four cockatoos of seven were released from the aviary in Omoi Cockatoo Reserve at 7.00 a.m. The remaining three birds were released on January 30, after making sure that at least two previously released birds were in the vicinity.
- One bird was recaptured by mid of May and kept in the aviary because it had lost weight below 250g. It was released again by end of May after it had regained 80g and a week-long treatment with antibiotics.

- By August all seven of the birds connected to the wild flock and were observed at the roost site in Lagan.
- Throughout the reporting period wardens were patrolling within the Critical Habitat, including the two cockatoo reserves. No illegal activities were reported from any month.
- In January, last repairs on natural tree cavities were done, particularly rain-proofing and mounting of fallen branches with nest holes.
- On January 26 a meeting of the Local Protected area Committee was held in Dumarán.
- On June 18, the 14th Kalabukay Festival was held in Dumarán. Participants were students from the local elementary and high school.
- From June to August, 14,136 trees were planted in the corridor between the two cockatoo reserves. By end of the reporting period, still 18,460 seedlings were in the nursery.

Objective 4: Education and research at the Katala Institute

- In January and February, our zookeeper Angel travelled with the seven cockatoos intended for release to Dumarán. Aside from taking care of the birds in the pre-release aviary, she also instructed wildlife wardens in captive bird management.
- Two nestlings were rescued from Rasa with heavy mite infestation. They were treated and handfed until recovered. Both were returned to their nest cavities in early June, where they were accepted again by their parents.
- Two more rescued birds suffered from leg injuries. One died shortly after being received by KI, and the other was successfully released after recovery.
- All cockatoos in long-term care were in good condition. Environmental enrichment was continued to prevent stereotypical behavior, however feather-plucking remained a problem with three of the cockatoos from the 2005 batch.
- During the reporting period, eight groups comprising a total of 189 participants were instructed in native tree propagation and cockatoo monitoring techniques.
- Within the reporting period 147 participants in six student groups from schools in Narra and Aborlan underwent introduction into pond dipping. An additional five teachers and six staff of KFI were trained as resource persons.
- The landscaping plan for an arboretum featuring 'Island Floras' was finalized. Landscaping was done from April to June with the aid of a backhoe and manually.
- During the 2017 Katala Festival, 288 seedlings were planted within the Katala Institute and a cockatoo foraging area in the coastal area of Narra. Within the reporting period, 2,551 trees were planted. At the end of the reporting period 2,303 seedlings in 20 species were present in the nursery.
- A brochure was printed advertising Katala Institute and activities offered. The facility can now also be found in Google Maps under the name 'Katala Institute'.
- A 1,800 m² area was fenced as one of two enclosures for a conservation-breeding group of Calamian Deer *Axis calamianensis*.
- Scientists from the Western Philippines University identified at least 48 woody plant species in the forest rehabilitation site in Apis, Aborlan, of which six were threatened and four were endemic to Palawan. The seedling bank of the critically endangered *Dipterocarpus grandiflorus* was considered sufficient to allow for regeneration into a mature dipterocarp forest if left undisturbed.

Other highlights:

- Dr. Anthony Lynam from the Wildlife Conservation Society conducted a training for SMART patrolling for KFI staff and assisted in the development of a data model specifically for the Philippine Cockatoo and Philippine Freshwater Turtles Conservation Programs.
- The Whitley Award 2017 was given to Indira for her work in the Philippine Cockatoo Conservation Program. The plaque was presented by Her Royal Highness Princess Ann during a ceremony in Royal Geographic Society, London on May 18. Other finalists came from Bolivia, Venezuela, South Africa, and India.
- A new board of trustees of Katala Foundation was elected on July 19.

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ACRONYMS

BMB	Biodiversity Management Bureau (formerly PAWB)
CE	Conservation Education
CENRO	Community Environment and Natural Resources Office(r)
DENR	Department of Environment and Natural Resources
ELAC	Environmental Legal Assistance Council
ENIPAS	Enhanced National Integrated Protected Area System
IUCN	International Union for the Conservation of Nature and Natural Resources
KEEC	Katala Environmental Education Center
KFI	Katala Foundation, Inc.
KI	Katala Institute
LGU	Local Government Unit
LPAMC	Local Protected Area and Management Committee
LPF	Loro Parque Fundación
MENRO	Municipal Environment and Natural Resources Officer/Office
MOA	Memorandum of Agreement
NEZS	Northern England Zoological Society
PA	Protected Area
PAMB	Protected Area Management Board
PASu	Protected Area Superintendent
PBFD	Psittacine Beak and Feather Disease
PCCP	Philippine Cockatoo Conservation Program
PCSD(S)	Palawan Council for Sustainable Development (Staff)
PENRO	Provincial Environment and Natural Resources Office
PFTCP	Philippine Freshwater Turtle Conservation Program
PNP	Philippine National Police
PWRCC	Palawan Wildlife Rescue and Conservation Center
RA 9147	Republic Act 9147 otherwise known as the Wildlife Protection Act
RIWS	Rasa Island Wildlife Sanctuary
SDENRO	Special Deputy Environment and Natural Resources Officer
WPU	Western Philippines University
ZGAP	Zoologische Gesellschaft für Arten- und Populationsschutz

INTRODUCTION

The Philippine Cockatoo *Cacatua haematuropygia*

The Philippine Cockatoo or Red-vented Cockatoo *Cacatua haematuropygia* is restricted to lowland forest areas and mangroves in the Philippines. Formerly, it could be found all over the archipelago (Dickinson *et al.* 1991). Only in the last decades a rapid decline set in, which brought the species to the brink of extinction (e.g. Boussekey 2000a; Lambert 1994). The reasons for the decline of the populations are (e.g.; Collar *et al.* 1999; Lambert 1994; Widmann *et al.* 2001):

- Habitat destruction, particularly in respect of nesting and food providing trees.
- Persecution as crop pest.
- Poaching for pet trade.
- Potential diseases caused by the introduction of captive birds in the range of wild populations.
- Tropical storms and typhoons

Habitat destruction and poaching are the most important factors threatening the Philippine Cockatoo.

Since 1888 Katala Foundation Inc. (KFI) implements the PCCP in the Philippines. Comprehensive conservation projects in this phase are currently undertaken in three sites in Palawan (Fig. 1): Rasa Island (Narra), Dumarán Island (Dumarán), Pandanan and Bugsuk Islands (Balabac). The two former sites contain by now protected areas declared on municipal or higher levels, specifically established to include the cockatoo populations. The Pandanan site is predominantly owned by Jewelmer Corporation, with which KFI has a Memorandum of Agreement for the conservation of the species.

We estimate that between 640–1,120 Philippine Cockatoos exist in the wild (assuming few populations have been overlooked in recent surveys of historical locations, and 100-150 individuals survive in the Sulus, for which only incomplete information is available).

The single-most important Philippine Cockatoo population on Rasa is secured under presidential proclamation as “Rasa Island Wildlife Sanctuary” since February 2006, in addition to local legislations. Highest population count was 317 individuals in 2014. Pandanan, holds possibly the second-most important population with at least 220 birds (up from 80) individuals.

With these three project sites in Palawan, it is estimated that between a third to half of the remaining wild population is currently covered in PCCP projects. Cockatoo populations are stable or increasing in all sites, and improved legal conservation could be achieved (e.g. through creation of cockatoo reserves). However, law enforcement by state agencies remains weak and pressure on these areas is rather increasing (migrant influx to Palawan, mining, planned large-scale projects, like biofuel plantation or coal plant).

Warden schemes remain the single-most important tool to assure the short-term survival and recovery of the species, whereas lobbying, conservation education, habitat restoration and reintroduction, as well as provision of alternative livelihood options are important for the long-term improvement of the frame conditions for cockatoo conservation in the Philippines.

Objective of the Philippine Cockatoo Conservation Program

Conservation and restoration of the most viable subpopulations of the Philippine Cockatoo and their habitats, including associated flora and fauna under involvement of all key stakeholders, resulting in a down-listing of the species from 'Critical' to 'Endangered' through reversing its population decline and under consideration of the precautionary principle.

Program Strategy



The main strategy of the programme is to conserve *in-situ* the most important subpopulations of the Philippine cockatoo through adopting participative methods.

The general program strategies are:

- Management of local resources in the framework of Philippine law;
- Capacity-building for local decision-makers and key stakeholders to ensure sustainability of the conservation efforts; and,
- Ecosystemic conservation approach with the Philippine cockatoo as flagship species.

Figure 1. Map of the Philippines indicating sites of the Philippine Cockatoo Conservation Program: 1. Pandanan, Balabac; 2. Rasa Island, Narra; 3. Katala Institute, Narra; 4. Omoi and Manambaling Cockatoo Reserves, Dumarán; 5. Iwahig Prison and Penal Farm, Puerto Princesa; 6. Kangbangyo and Poneas Islands, Del Carmen. Black: project sites covered in this report; red: other PCCP sites

Deliverables

Objective 1: Conservation of cockatoo population on Pandanan and Bugsuk Islands, Balabac

- Warden scheme on Pandanan and Bugsuk Island continued and extended to adjacent mainland.
- Monitoring of cockatoo population and habitat on Pandanan and Bugsuk Island continued.
- Conservation education in Pandanan Island and adjacent mainland continued.
- Research on conservation-related aspects of cockatoo biology on Pandanan and Bugsuk continued, with focus on factors influencing breeding success and foraging ecology.

- Advocacy in respect to impacts and perpetrations in cockatoo habitats, particularly networking with local stakeholders, particularly Jewelmer Corporation, the largest private landowner, continued.

Objective 2: Conservation of cockatoo population on Rasa Island, Narra

- Warden and mainland volunteer scheme continued.
- Members of Protected Areas Management Board in the management of the Philippine Cockatoo and Rasa Island Wildlife Sanctuary capacitated and meetings facilitated.
- Conservation education for stakeholders continued.
- Research on conservation-related aspects of cockatoo biology on Rasa continued, with focus on factors influencing breeding success and foraging ecology.
- Advocacy in respect to impacts and perpetrations in cockatoo habitats continued.

Objective 3: Conservation of cockatoo population on Dumaran Island, Dumaran

- Warden scheme continued.
- Members of Local Protected Areas Management Committee in the management of the Philippine cockatoo, as well as Omoi and Manambaling Cockatoo Reserve assisted and capacitated.
- Research on conservation-related aspects of cockatoo biology on Dumaran continued, with focus on factors influencing breeding success and foraging ecology.
- Buffer zone restoration around existing cockatoo reserves continued.
- Creation of forest corridor connecting the two existing cockatoo reserves continued.
- Advocacy in respect to impacts and perpetrations in cockatoo habitats continued.

Objective 4: Education and research at the Katala Institute for Ecology and Biodiversity Conservation

- Captive management of Philippine Cockatoo and other highly threatened species continued through employment and training of zookeepers and volunteers.
- Landscaping with native species propagated in the Katala nursery continued.
- Educational trail, enclosures and visitors facilities upgraded.
- Proposal submission to other potential donors continued.

Description of Project Sites

Rasa Island, Narra, Palawan

Rasa is a small coral island of 8.34 km² land area situated in the Sulu Sea, just offshore of the Municipality of Narra, Palawan, Philippines (Fig. 2). About 1.75 km² are covered with coastal forest, mangrove (5.60 km²), cultivated areas (predominantly coconut; 0.39 km²), 0.60 km² are barren or sparsely vegetated sand and coral outcrops. In February 2006, the island became a Wildlife Sanctuary through Presidential Proclamation 1000 and since a Protected Area Management Board is functioning as management body for Rasa Island Wildlife Sanctuary (RIWS). In 2008, RIWS was chosen as Top 13 Bird Watching Sites in the Philippines by the Department of Tourism.

The island is the pilot site of the program since 1998. Due to intensive poaching, only 23-25 Philippine cockatoos were left on the island then. Key component of this project site is the warden scheme which involves patrolling and protection of the birds during and outside the breeding season. This scheme has proven to be efficient and lead to dramatic recovery of the Philippine Cockatoo population as of to date. As of 2014, 317 cockatoos have been simultaneously counted on roost sites on Rasa and adjacent mainland.

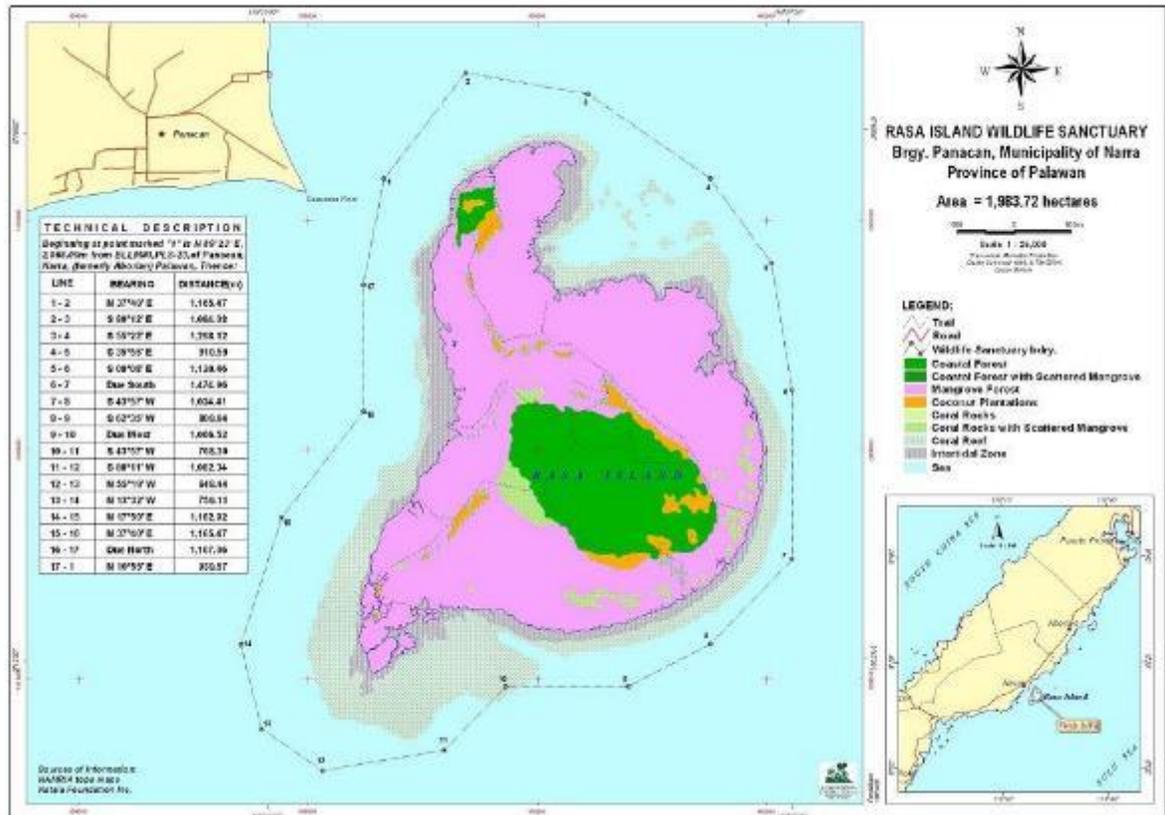


Figure 2. Vegetation cover of Rasa Island Wildlife Sanctuary, Palawan, Philippines

Rasa Island probably therefore holds the highest population density of Philippine Cockatoo that remains in the wild. The world population of Philippine cockatoo was estimated to range between 1,000 to 4,000 individuals (Lambert 1994). More recent estimates put the number of cockatoos remaining in the wild between 640 and 1,120. About 75% of this population is found in Palawan.

Not only Philippine Cockatoos live on the island, but a variety of other species, with an unusual high percentage of globally threatened and near-threatened taxa (IUCN 2015), considering the small size of Rasa. Noteworthy among the 112 recorded bird species are Red-headed Flameback *Chrysocolaptes erythrocephalus* (EN), Grey Imperial-pigeon *Ducula pickeringii* (VU) and Mantanani Scops-owl *Otus mantananensis* (NT).

Dumaran Island, Dumaran, Palawan

Dumaran is situated in north-eastern Palawan between 10°22' and 10°41'N and 119°28' and 119°55'E. Nine Barangays are situated on Palawan mainland, seven on western Dumaran

Island. The island is situated in the Sulu Sea and separated by a ca. seven km wide channel from the mainland.

PCCP currently manages three areas on the island: Omoi and Manambaling Cockatoo Reserves (Fig. 3) and the traditional roosting site in Lagan. A Local Protected Area Management Committee (LPAMC) functions as its management body. Both cockatoo reserves, a buffer zone and a corridor connecting both areas was declared as critical habitat, comprising 1,500 ha.

All natural terrestrial ecosystems in Dumarán are tree-dominated. On Dumarán Island only few small and isolated forest patches remain, none of them larger than 103 ha. The most abundant formation is evergreen and semi-evergreen lowland forest with Ipil *Intsia bijuga*, Amugis *Koordersiodendron pinnatum* being emergent tree species of commercial value.

Ornithological surveys conducted by Katala Foundation so far yielded 136 species from the island. A prominent species of conservation concern is the Philippine cockatoo, which can be found with viable population in the mangroves and forest remnants of Dumarán Island, but apparently not anymore on the mainland. The last remaining forest patches are therefore of global conservation concern. This notion is supported by the recent records of other globally threatened species, particularly the Palawan Forest Turtle *Siebenrockiella leytensis* (CR).

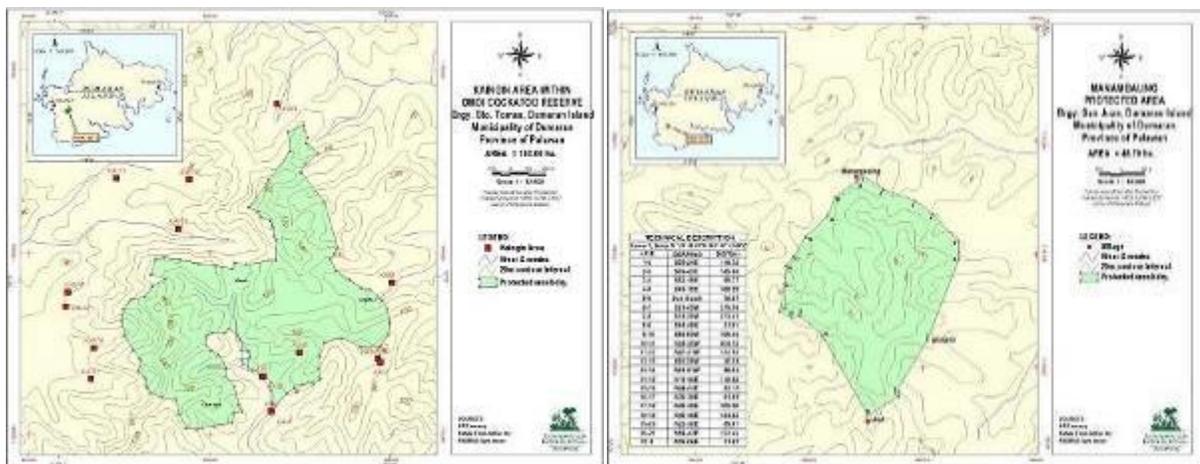


Figure 3. Omoi Cockatoo Reserve (left) and Manambaling Cockatoo Reserve (right) cover the last forest patches on Dumarán Island.

Other species of conservation concern are Palawan Hornbill *Anthracoceros marchei* (VU), Blue-headed Racquet-tail (VU) and Palawan Pencil-tailed Tree-mouse *Chiropodomys calamianensis* (DD).

Habitat degradation and destruction, rather than poaching, remain the biggest challenges for cockatoo conservation in Dumarán. In the current phase ca. five hectares of secondary forest and grassland were purchased with support of the Stadtholding Landau in the course of a carbon-mitigation project. These areas have been rehabilitated and integrated in the buffer zone of the Omoi Cockatoo Reserve.

The Critical Habitat established through PCSD Resolution No. 14-513 connects the two existing cockatoo reserves through a corridor and extends to include remaining forest fragments in the area. This is the first critical habitat established in the Province of Palawan.

Pandanán Island, Balabac

Pandanán Island in Bgy. Pandanan belongs to the north easternmost municipality of Balabac in Palawan (Fig. 4). Coastal forests are dense and stock on flat limestone originating from elevated coral reefs. Large trees in the coastal forest are mostly deciduous and widely spaced due to water stress during the dry season. The understory is very dense with abundant vines. Emergent trees comprise the genera *Dipterocarpus*, and *Ficus*. A narrow rim of beach forest with *Erythrina*, *Calophyllum* and *Barringtonia* is present. The dense coastal forest cover is as well protected because the large portion of the island is privately-owned and entries are monitored by private guards. Coconuts are the major crop grown in the coastal areas and shifting cultivation including lowland rice, corn, and root crops inside forested areas are common land use forms. Extensive mangroves are thriving.

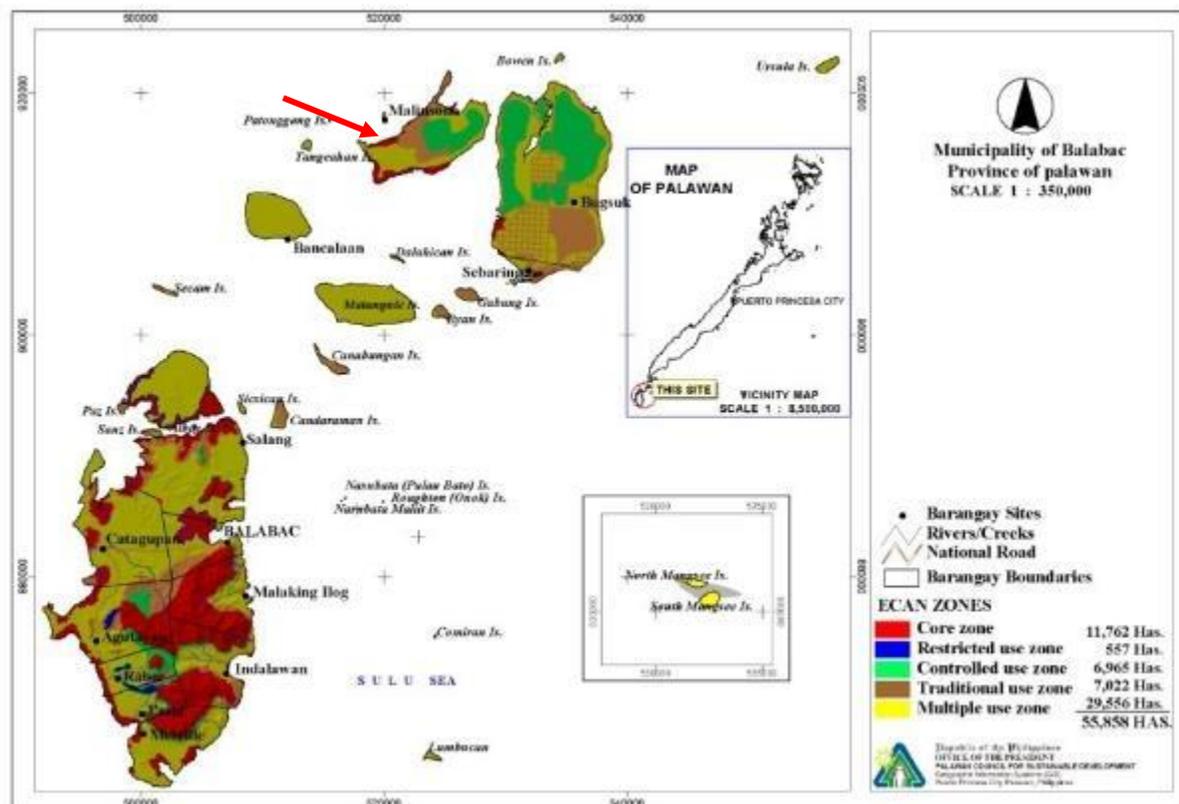


Figure 4. Location map of Pandanan Island indicated by red arrow (Map Source: PCSDS).

So far, 91 bird species have been recorded in Pandanan and adjacent Malinsuno. Among these are six globally threatened and six near-threatened species (IUCN 2015). Of outstanding conservation concern are particularly the larger tree cavity nesters, like Palawan Hornbill, all three parrot species of Palawan, Philippine Cockatoo, Blue-naped Parrot and Blue-headed Racquet-tail, and other conservation relevant species like Grey Imperial-pigeons and Mantanani Scops-owl (Widmann *et al.* 2008). The first and only record for the Philippines of a Fairy Pitta *Pitta nympha* comes from Malinsuno as a result of the conservation project.

The implementation of the warden scheme recruiting cockatoo poachers resulted in significant increases of the cockatoo population in the first years of project implementation, comparable to those of the early stages on Rasa Island. In recent surveys, roosting site is at a coconut plantation in Malinsuno Island just across Pandanan Island.

Methods

The Philippine Cockatoo Conservation Programme (PCCP) employs an ecosystemic and community-based approach to biodiversity conservation using the Philippine cockatoo as its flagship species. The main components of the program are nest protection or warden schemes; scientific researches on feeding, biology and ecology of the Philippine Cockatoo and other threatened species; identification, protection and management of key conservation sites; conservation education; habitat restoration; and capacity building. Researches on the Philippine Cockatoo include distributional surveys, rescue of individual birds, reintroduction and translocation assessments, and captive management for conservation education and conservation breeding for later reintroduction.

Information on the biology and ecology of the cockatoo is gathered mainly through direct observation. On Rasa, movements of the cockatoos can be best observed from a boat, from beaches or coral outcrops. Very dense vegetation on the island considerably hampers visibility on transect walks or point counts. On Dumaran and Pandanan movements are observed through wardens monitoring and patrols at protected areas and roost sites.

Monitoring of the population trend on Rasa, Dumaran and Pandanan is done through counting individuals at a traditional roost site. A traditional roost site is situated in a mangrove area on Rasa and can be observed from a boat while in Dumaran a privately-owned coconut plantation serves as the roost site bordering close to a mangrove area. On Balabac, at least two roosting sites are presently monitored; one in Malinsuno Island and the other on Pandanan Island. Counts are conducted monthly either before sunset on Rasa and Balabac islands and daily on Dumaran. Counts are also conducted during dawn before birds leave the roost site. Whenever possible, counts on Rasa are conducted under similar weather and light conditions.

The core component in all project sites is the warden scheme, employing former poachers as wildlife wardens. Wardens inspect and verify existing and potential nest trees starting end of September. During the breeding season, the nest trees are under permanent surveillance. Trees are climbed and nest holes controlled every ten days during that time. For safety reasons, dead or damaged trees are not climbed. Nest trees are characterized through species identification, tree height, diameter at breast height (DBH), height of nest hole, exposition of nest hole, diameter of hole, and diameter at base and depth of cavity. The geographic location of each nest tree is taken with the help of a GPS and marked in a map.

Presence or absence and condition of adult birds, eggs, nestlings or nest predators are noted. Nestlings are weighed with Pesola spring balances/and or electronic balance and banded with aluminum rings bearing the inscription of the Department of Environment and Natural Resources (DENR), the number and year (e.g. DENR 0001-15).

Volunteers are detailed in monitoring stations at the mainland coasts of Narra within and outside the breeding season. These volunteers record all sightings of cockatoos and other significant wildlife in the area of assignment.

Surveys to find remnant cockatoo populations are based on historical sources or recent information. To initially narrow down the searches, non-formal interviews with key informants (poachers, other forest users, barangay officials, school teachers) are conducted. Surveys aim to identify remnant cockatoo populations or areas which are suitable for translocation.

Herbarium collections are made of key plants in cockatoo habitats, particularly food-providing plants, and nest and roost trees. The physical structures of cockatoo breeding habitats are characterized through forest profiles. Phenological information on fruiting and flowering of food-providing trees are systematically collected on Rasa and Dumarán.

Larger-scale restoration of lowland forest habitat is currently done in Dumarán. Particularly nest- and food-providing plants for cockatoos are systematically tested for their suitability for reforestation. MS Access and excel programs are used for analysis.

Composition of remaining bird communities in project and survey sites is assessed using MacKinnon-Lists and, occasionally, mist-netting. Composition of mammal, reptile and amphibian communities in project sites is assessed through direct observations, mist- and harp-netting, live-trapping (Sherman type and locally-made cage type) and pitfall trapping.

To identify potential cooperators for the projects, livelihood needs, and capacities, stakeholder and SWOT analyses are employed. Participatory planning is done through goal-oriented project planning methodology. Alternative livelihood is provided for key-stakeholders of the cockatoo and the PAs, based on the needs assessments.

Conservation education activities employ the PRIDE approach which uses marketing methodologies to galvanize community support for conservation. The approach conducts pre and post project surveys to assess changes in levels of knowledge, awareness and behavior among target audience by using control groups. Survey Pro is used for analysis on changes over time. Proven marketing vehicles like billboards, posters, fact sheets, puppet shows, school and community visits, festivals and media participation are used to deliver relevant and compelling conservation messages.

Relevant trainings and seminars are conducted to help capacitate local partners in conservation. Cross visits to Rasa and other project sites are encouraged to facilitate exchange of experiences, lessons learned and good practices to boost morale of local partners and reinforce knowledge.

Please refer to each output for particular methodologies used in achieving results.

Results and Progress

Objective 1: Conservation of cockatoo population on Pandanan and Bugsuk Islands, Balabac

Research on conservation-related aspects of cockatoo biology on Pandanan and Bugsuk continued, with focus on factors influencing breeding success and foraging ecology

Roosting

Highest roost count since inception of the project was reached with 254 individuals recorded. As in the previous four years, highest counts occurred in July, presumably because in this month the roost site is most sheltered against the southwest monsoon. Likewise, as in previous years numbers dropped quickly again in August, because birds transferred to roosting sites closer to foraging areas.

In May a temporary roost with a maximum of 33 birds was established in northern Pandanan, presumably consisting of adult cockatoos with their recent fledglings. Another temporary roost site was occupied in Sebaring, Bugsok in August. Four days were spent in the area and between 140 and 193 cockatoos were observed during this time. The roost is only 100m away from a productive *Sonneratia* foraging area.

In the last week of July, the roost site on Malinsuno was disturbed by a White-bellied Sea-eagle *Haliaeetus leucogaster*, but no losses of cockatoos were observed.

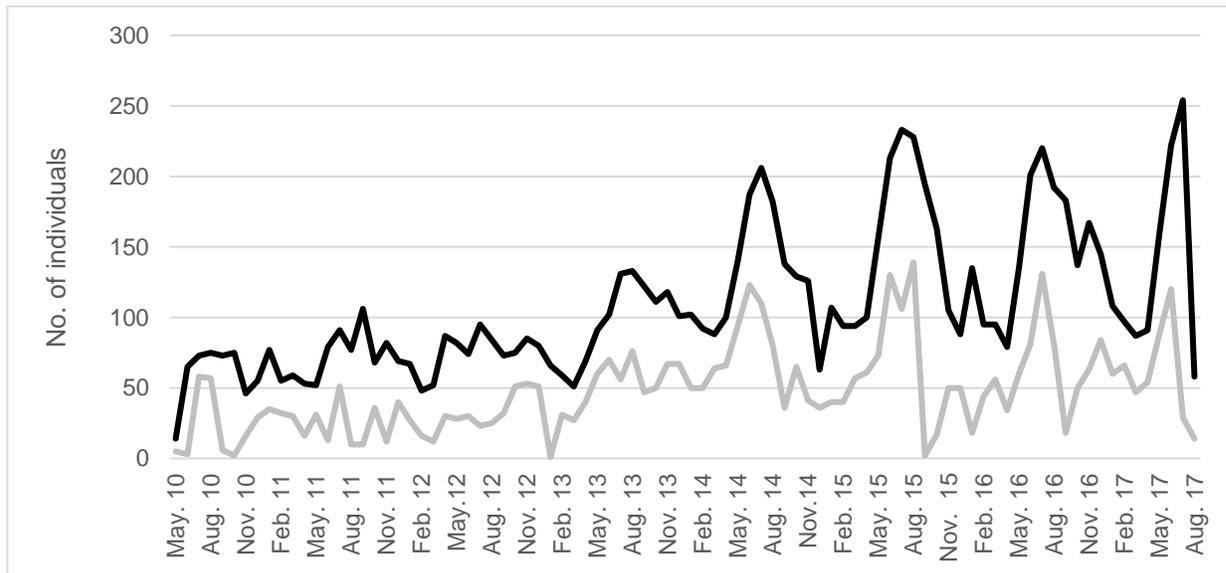


Figure 5. Minimum and maximum numbers of cockatoos roosting on Malinsuno, Balabac, by month

Foraging

In February, 17 food-providing trees were bearing fruits or flowers in abundance, the highest number within the reporting period. In late June and August, flocks of 15-20 cockatoos were observed foraging along the southern tip of the main island of Palawan, feeding on flowers of *Pterocarpus indicus*.

In August an important feeding source was the mangrove *Sonneratia alba*. Adults and immature birds were feeding on this species and established a temporary roost site in the vicinity of this food source.

Immature birds were also recorded on fruiting Horseradish Trees, as indicated by the gold-colored rings which were used during this year's breeding season.

A survey in August indicated that cockatoos were not raiding rice paddies within shifting cultivation areas on Pandanan.



Figure 6. This year's fledgling feeding on pod of Horseradish Tree (Photo: R. Antonio)

Breeding

Fifteen nest trees were active during the breeding season. Five of these were newly discovered by the team, while 22 known nest trees remained inactive. The 15 pairs produced 45 eggs. Three eggs were found to be rotten and were removed by wardens, seven eggs disappeared, either thrown out by parent birds or predated. Nine hatchlings did not fledge, with probable causes being predation by monitor lizards or snakes. A snake which was preliminarily identified as *Chrysopelea* sp. was caught in the immediate vicinity of the cavity of nest tree no. 30. Nest competition with Hill Mynas *Gracula religiosa* was observed again, and this may have caused losses of three eggs. No mite infection was observed.

On Pandanan, 26 hatchlings were banded and fledged successfully between mid of April and the first week of May. Five active cockatoo nests were found on the neighboring Bugsuk, out of a total of ten potential nest trees identified. For the first time, three nestlings could be banded on this island, while eight more fledged before they could be ringed.

A nest tree that was previously used by cockatoos was in this season occupied by a Palawan Flying Squirrel *Hylopetes nigripes*.



Figure 7. Banding of hatchlings shortly before fledging (Photo: R. Antonio)

Warden scheme continued

Wardens continued patrolling in Pandanan throughout the reporting period, often in combination with nest monitoring during the onset of the breeding season in the first weeks of the year. The SMART patrol system using smartphones was introduced but still requires practice to be fully functional.

In January indications of treasure hunting were observed near the northern coast of Pandanan. Shifting cultivation was noted during the dry part of the year, particularly in the southwestern portion of the island. In February, small-scale clearcutting of forest near nest trees was recorded. This was reported to the authorities in charge. Wardens partly replanted these areas with native tree seedlings from the KFI nursery in the last week of May.

In February the warden's station on Pandanan was repaired, particularly the palm thatch was partly replaced. The reforested area was weeded. In early August, a nursery shed accommodating 1,000 seedlings was built, and 940 seed bags were prepared for seeding.

From June onwards, wardens began nest tree characterizations of newly discovered nest trees. Climbing was however hampered by strong monsoonal rains. Also in June, 63 households were visited by the team to inform residents on wildlife laws and remind parents to educate their children not to use slingshots. No wildlife kept as pets were recorded. Limited illegal logging was recorded in July and reported to authorities. In August, a transient couple was refused permanent settlement status by the tribal leader. The woman was allegedly involved in wildlife smuggling during earlier stays on Pandanan. Wardens are closely monitoring this situation.

Shifting cultivation areas were mapped in August; of the 19 sites, eight also affected primary forest.

Experimental distance sampling involving parrots and hornbills was conducted in late July on Pandanan.



Figure 8. Diameter of this nest tree (*Dracontomelon dao*) has to be measured above the buttresses (left); newly planted *Intsia bijuga* (right); Photos: R. Antonio)

Conservation education

On January 17, a Katala Fun Day was organized for 53 students of Malinsuno Elementary School. Topics tackled included climate change and the latest KFI project on Balabac Mouse-deer.

In June focus group discussions were conducted on wildlife protection, involving 63 households. Discussions with local stakeholders in July focussed on effects of shifting cultivation and reached 23 households.

Constraints and measures taken

- Excessive rain hampered some of the patrolling activities. Climbing had to be rescheduled several times, in order to prevent accidents due to slippery trunks and branches.
- Security situation in southern Palawan still does not permit prolonged visits from outside KFI personnel. Security briefings by the Armed Forces of the Philippines are regularly consulted.

Objective 2: Conservation of cockatoo population on Rasa Island, Narra

Research on conservation-related aspects of cockatoo biology on Rasa continued, with focus on factors influencing breeding success and foraging ecology

Roosting and foraging

The traditional roost site is now almost completely abandoned after being occupied for at least 19 years. No birds were recorded in January and February, only six and five birds in March, and April/May respectively. Up to seven temporary roost sites are utilized by cockatoos, most of them outside of Rasa. A relatively stable site in the center of Panacan village accommodated 111 birds in August, a small island close to mainland Palawan up to 43 birds in February, and another small island 63 birds in August. Some birds continue roosting close to nest sites as well, with up to ten birds recorded at single nest in August, including adult and immature birds. It is suspected that larger roosts exist in the interior of

mangroves on Palawan mainland SW of Rasa. Simultaneous monitoring of these roost sites would require at least five boats.

Food supply on Rasa was abundant throughout the reporting period. The vegetation stayed green throughout the dry season, probably due to the fact that the freshwater lens on Rasa was replenished by strong rains at the end of 2016 and early 2017. Largest foraging flocks are routinely observed crossing from and to Rasa at the narrowest point to the main island, with exit counts of up to 203 birds in July, the highest count by far since birds started again foraging on the main island. Flocks of up to 102 birds frequented a foraging area in the coastal plains close to Rasa, feeding on fruits of Horseradish Tree. Numerous smaller flocks visited as well, but exact counts were not possible due to overlapping flight paths.

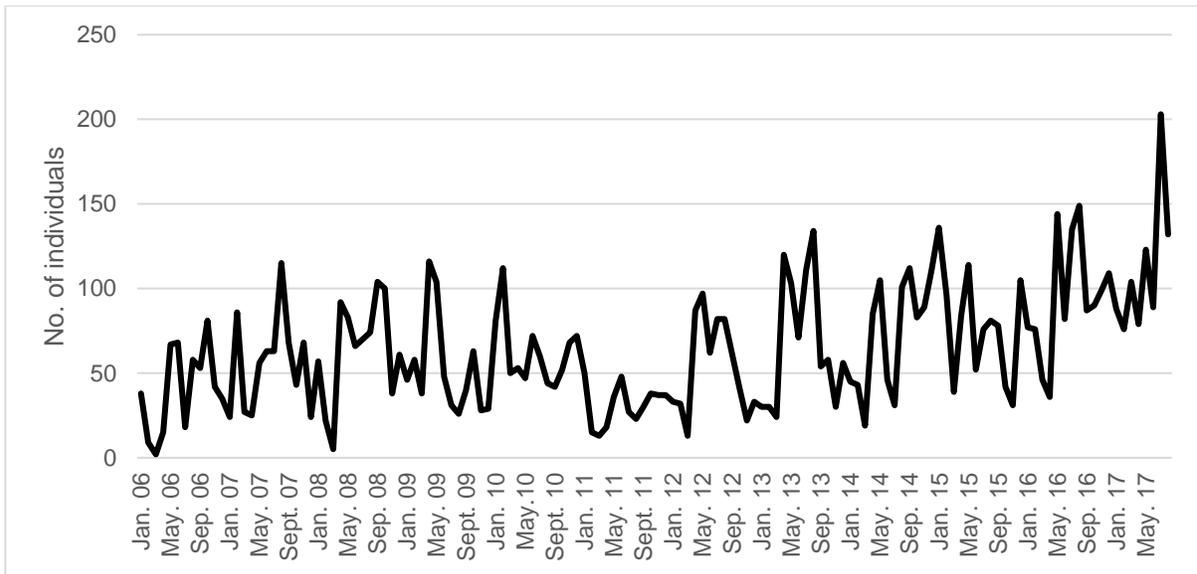


Figure 9. Numbers of cockatoos on simultaneous counts foraging on mainland opposite of Rasa.



Figure 10. Flock of cockatoos feeding on fruits of Horseradish Tree (left); Cockatoo in Casuarina in coastal vegetation opposite of Rasa (right: Photos: A. Agullo)

Breeding

As in the previous two drought events, the severely dry year 2016 was followed by a wetter than usual one in 2017. This resulted in an abundant food supply already by the end of 2016 and the highest number of breeding pairs, laid eggs, hatchlings and fledglings since the start

of the project almost twenty years ago! Possibly due to good food supply well before onset of the breeding season, 47 pairs got into breeding condition. Of the 116 eggs laid, only 20 failed. Main reason for failed eggs was infertility. Of 96 hatchlings, a record 90 birds fledged, although only 85 were banded, and five fledged without being ringed. Predation attempts on occupied nest trees by monitor lizards and Crested Goshawks *Accipiter trivirgatus* were observed. Another problem was the deepening of nest cavities, resulting in losses of eggs and small hatchlings. Mite infestation was affecting some clutches. Hatchlings and nest substrates were treated with acaricides. Two nestlings were brought to Katala Institute for treatment and recovery. In early June, these hatchlings were brought back to their respective nest cavities and received supplementary feeding until it was established that parent birds were feeding them.

In good years, like 2017, absolute numbers of breeding pairs and productivity are still increasing, indicating that availability of nest sites is not a limiting factor on Rasa. Average productivity per pair was higher than in the previous years, but still lower as in comparable (wet) years, following dry years.

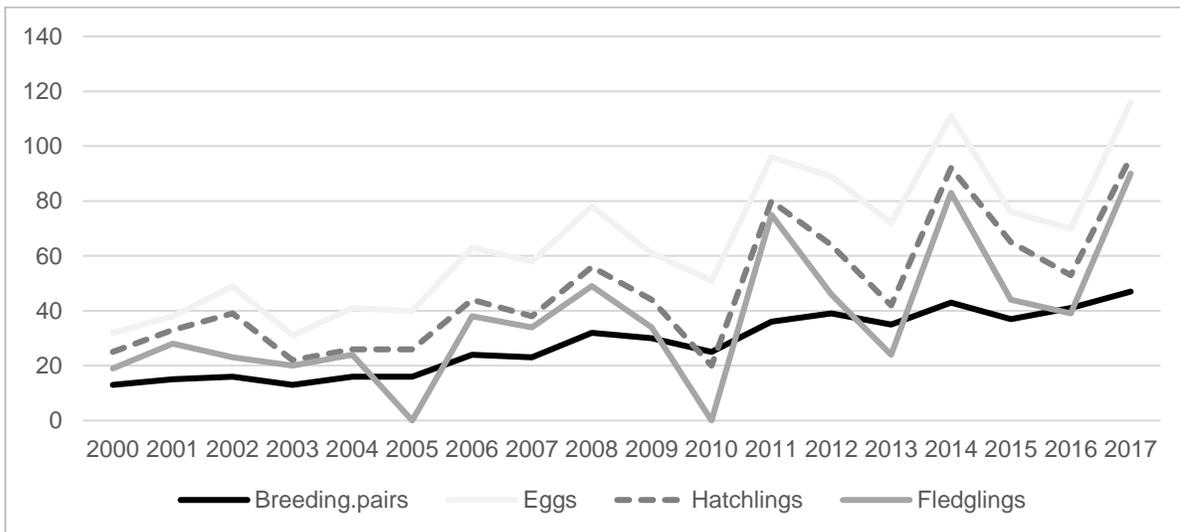


Figure 11. Absolute numbers of cockatoo breeding pairs, eggs, hatchlings and fledglings per breeding season on Rasa Island.

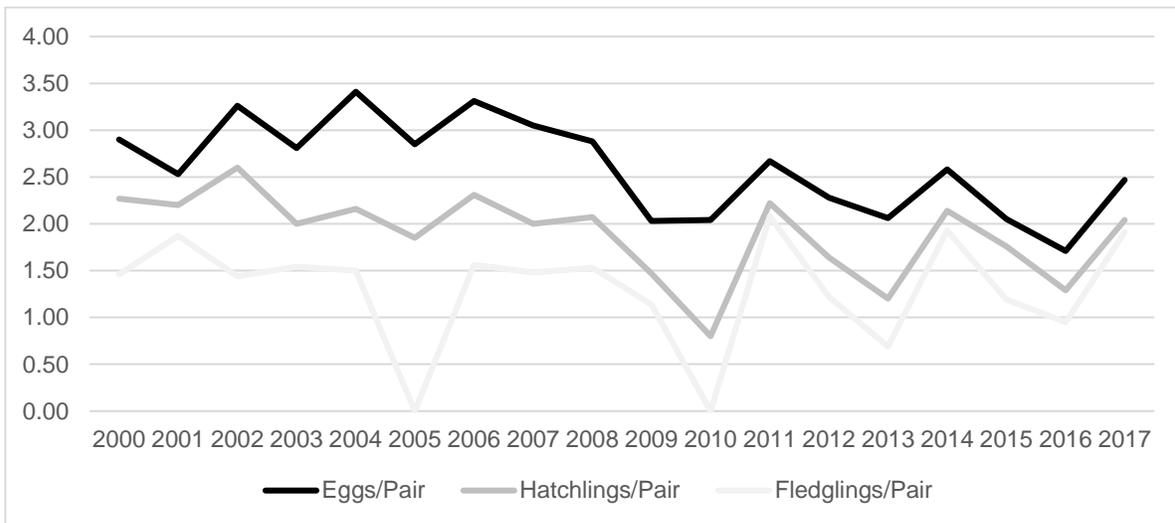


Figure 12. Average number of eggs, hatchlings and fledglings per breeding pair and breeding season



Figure 13. Cockatoo hatchling in shallow tree cavity (left); hatchling after supplementary feeding (right: Photos: KFI)



Figure 14. Weighing and measuring of hatchlings (left); clutch of four nestlings ready for banding in wicker basket (left: Photos: KFI)

Psittacine Beak and Feather Disease (PBFD) Screening

Although the sequencing results from Malaysia indicated that cockatoos from Rasa were negative for the virus, we were still alarmed by the positives from captive Budgerigars from Narra and Puerto Princesa. We sent communication to Palawan Council for Sustainable Development (PCSDS) and the DENR-BMB. The former convened a small technical working group (including PCSDS, and representatives of animal industry authorities and vets in the Province), and on February 15, we discussed the options to take to include collecting more samples of pet parrots from the shops, pet owners with registration and also the parrots from the rescue center (PWRCC). When we followed up with PCSDS on this, the Director sent communication, deeming the matter “not urgent”, hence the technical working group was not activated and instead the Director was asking us to submit a proposal to seek permit to do a thorough PBFD study in the province.

Meanwhile, on March 31 the Protected Area Management Board (PAMB) passed a resolution to request the local government of Narra to create a monitoring/testing program for health of pet parrots of this municipality for PBFD.

Samples from 2017 are still processed by University of the Philippines Diliman. We are currently seeking additional funding for the additional screening.

In August we got in touch with Dr. Vikash Tatayah from the Mauritian Wildlife Foundation. The Echo Parakeet project is heavily affected by PBFD outbreaks. We were familiarized with procedures to avoid contamination between populations, but more importantly were put in contact with D. Fogell and J. Groombridge from DICE and S. Tollington from NEZS. The latter indicated his willingness to visit Palawan and help us with improved sampling and screening protocols.

As short-term activities we suggest the following:

- Increase of permitted sample numbers in each project site.
- Intensive sampling of pet parrots in Narra.
- Increased advocacy within PCSDS to highlight the severity of the matter.
- Full blood samples will be taken, instead of feather samples. Storage of samples in absolute ethanol, instead of EDTA. Possibly Simon Tollington from NEZS will capacitate KFI staff (and possibly personnel from concerned government agencies) in sampling procedures.
- Additional funding is currently sought to accommodate more reliable screening, particularly of samples from Rasa and pet parrots from Narra.

Warden and mainland volunteer scheme continued

Patrolling on Rasa continued throughout the reporting period. No extension of coconut plantations was noted. Foraging flocks were monitored daily by mainland volunteers. The SMART patrolling system was introduced, but still needs practice by wardens to yield useful results.

Wardens assisted in the renovation of boardwalk, birdwatch tower and campsite in January. This activity was financed through protected area funds of the DENR.

In preparation for the breeding season terracotta bowls on Rasa were regularly refilled with freshwater. Thirteen data loggers were installed inside nest cavities to record temperature

during the breeding season in February. Nest characterization, particularly updating faulty GPS readings continued from January to early March.

Monitoring of marine harvests in the vicinity of Rasa continued, particularly for sea cucumbers.

Wardens assisted several photo journalists and film crews during the reporting period, but feedback from these outfits was mostly disappointing in terms of providing copies of footages taken from Rasa.



Figure 15. Wardens practicing patrolling using smartphones (right; Photo: A. Argullo)

Conservation education activities for stakeholders

On June 30, the 11th Katala Festival was held in Narra. As in previous years, the Wild Bird Club of the Philippines supported activities, for example through introductions to birdwatching, face painting, or capacity development for school teachers. This year's expenses for the festivity was greatly shared by the local government of Narra, KFI and the DENR.

A photo exhibit featured vital ecosystem services, like provision of food, erosion control, carbon sequestration, or pollination. Several competitions with environmental content were conducted in the municipal's gym. Aside from teachers and students, also officials from the local government and agencies participated in the affair.

Activities in Katala Institute included pond dipping, tree nursery courses and tree planting. Food-providing trees for the cockatoo were planted in the KFI lot in Panacan, the main foraging area for the Rasa cockatoo population.

Seven visitor groups to Rasa included local officials from surrounding villages (barangays), members of the Protected Area Management Board, students from several schools in Narra, and members of a fisher folk association, which also benefits from the marine protected area of Rasa. A total of 74 participants was registered within the reporting period, bringing up the

total visitor number for the project duration to 106 in nine tours, not including the two test schedules with external visitors.

A guided tour to the cockatoo roost site during this year's Katala Festival catered to 36 local, national and international visitors and 90 cockatoos were recorded during this occasion. A total of 489 students from six schools in Narra participated in introduction to birdwatching. For security reasons, this year the module had to be conducted in rice paddies adjacent to the festival venue.

A quick survey was conducted among selected participants of the Rasa tour, to measure efficiency of the educational tour. Questions comprised topics like cockatoo conservation, as well as ecosystems and ecosystem services of Rasa Island. Knowledge and positive attitudes towards conservation was already quite high before the tours among participants with 66.7%, but still increased by 29.9 percentage points to 96.6% after the tour.



Figure 13. Line-up of mascots, borrowed from marine conservation projects, together with Mayor Demaala and local officials (left); introduction to birdwatching was handled by members of the Wild Bird Club of the Philippines (right; Photos: P. Widmann)



Figure 14. Student group during environmental chant contest (Photo: P. Widmann)

Constraints and measures taken

- In the next breeding season, we will experimentally fill up two nest cavities, which deepened to an extent that eggs and hatchlings are in danger of getting lost. Wood shavings treated with carbaryl will be used for this purpose.
- There is increased interest from national and international media on the cockatoo project in Rasa. Staff spends considerable time for these requests, but unfortunately feed-back after footage secured by these outfits is sparse. In one case even the obligatory filming fee was not paid until now. We will recommend to the PAMB to be more selective with granting access for these purposes.

Objective 3: Conservation of cockatoo population on Dumaran Island, Dumaran

Research on conservation-related aspects of cockatoo biology on Dumaran continued, with focus on factors influencing breeding success and foraging ecology

Roosting

Numbers of roosting cockatoos increased slightly towards the end of the breeding season, reaching 20 individuals in August, when six of the newly released cockatoos joined the roost site as well.

For unknown reasons, the three previously released cockatoos sleep in the vicinity of the roost site, but do not join the wild flock for sleeping.

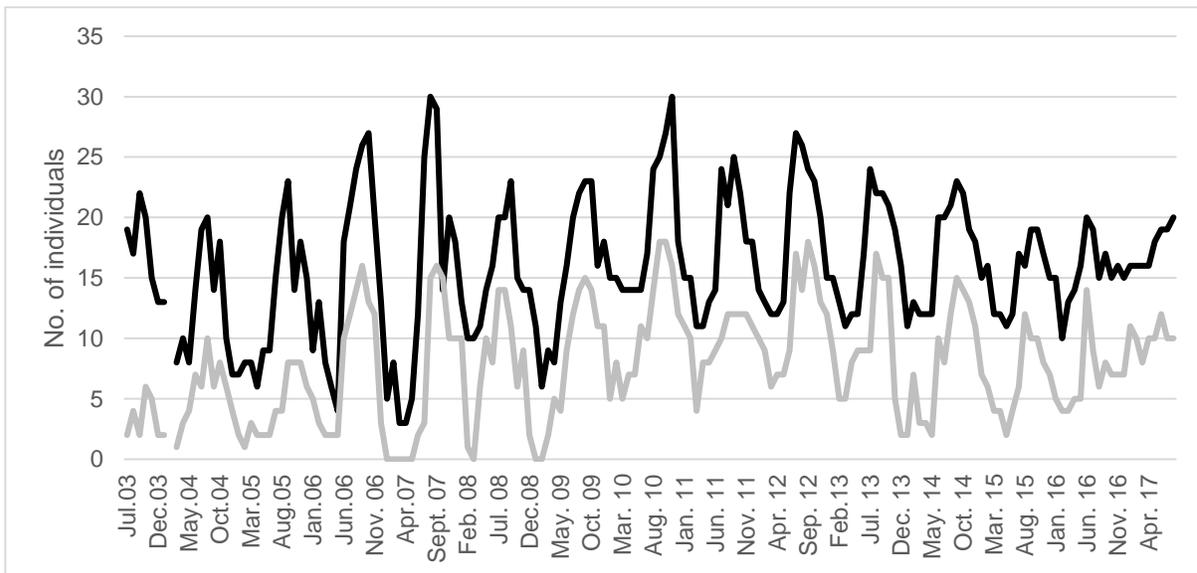


Figure 15. Minimum and maximum numbers of cockatoos counted on the traditional roost site in Lagan, Dumaran per month

Breeding

Only three pairs attempted breeding in this year’s breeding season. Seven eggs were laid of which five turned out to be infertile. Two hatchlings were banded and fledged successfully. The low reproductive success, despite very good natural food supply, indicates that the remaining cockatoo population may be overaged and highlights the importance of supplementing this population with birds from outside. As on Pandanan, Hill Mynas turn out

to be serious nest competitors and took over some of the cavities which formerly were occupied by cockatoos.



Figure 16. Weighing (left) and banding of hatchlings in Omoi Cockatoo Reserve on Dumarán (right; Photos: KFI)

Translocated cockatoos

On January 27, four cockatoos of seven were released from the aviary in Omoi Cockatoo Reserve at 7.00 a.m. after feeding. Five of the seven birds were rescued from starvation during the El Niño 2016 breeding season on Dumarán Island itself and two were from Puerto Princesa City. The release was witnessed by LGU officials, PCSDS and DENR representatives, PNP-Dumarán, media, and other members of the interim management board of the newly established Critical Habitat on Dumarán Island, Palawan.

Aside from being banded with color ring combinations, they were also temporarily color-coded on the wing coverts to allow for individual identification. Birds stayed in the vicinity of the aviary for half an hour, but then flew off, possibly spooked by a passing Oriental Honey-buzzard *Pernis ptilorhynchus*. One bird returned about an hour later, and the other three birds were located within 300m for the aviary. The remaining three birds were released on January 30, after making sure that at least two previously released birds were in the vicinity. Four birds remained close to the release site until July. They were utilizing the feeding stations, but were commonly observed to forage on wild fruits.

In early April, two birds were reported to stay in the vicinity of a farm in the neighboring municipality of Araceli. The location is about 15 km away from the release site. Both were recaptured and returned to the aviary in Omoi. They were kept for three days and then released again. In early May both birds showed up in the same farm again, but were chased away by the residents, as per instruction from our wildlife wardens. The other released birds were seen within and nearby the cockatoo reserves and frequently visited the feeding stations.

One bird was recaptured by mid of May and kept in the aviary because it had lost weight below 250g. It was released again by end of May after it had regained 80g and a week-long treatment with antibiotics. Before each release, birds were physically examined and weighed.

By August all seven of the birds connected to the wild flock and were observed at the roost site in Lagan, including one of the birds which was not observed since release near the aviary in Omoi.

Three of the four cockatoos released in 2015/16 were observed regularly within the reporting period, often foraging together with the wild flock. As of end of the reporting period, ten out of eleven released birds can be regularly recorded.



Figure 17. Color-coded cockatoos after release (Photos: P. Widmann)



Figure 18. Birds are fed immediately after release (left); five released cockatoos together with two wild ones (right; Photos: M. Plazos)



Figure 19. Recaptured cockatoos from Araceli (Photos: M. Plazos)

Warden scheme continued

Throughout the reporting period wardens were patrolling within the Critical Habitat, including the two cockatoo reserves. No illegal activities were reported from any month.

The 29 biodiversity monitoring stations were sampled on a monthly basis. Hornbills and three species of woodpecker were regularly recorded.

In January, last repairs on natural tree cavities were done, particularly rain-proofing and mounting of fallen branches with nest holes.

In August, wardens monitored rice paddies for damage caused by cockatoos. None was recorded from these crops. However, people started planting sorghum for own consumption and cockatoos were consuming these. KFI originally recommended to plant sorghum in the vicinity of paddies to distract foraging cockatoos from the rice.

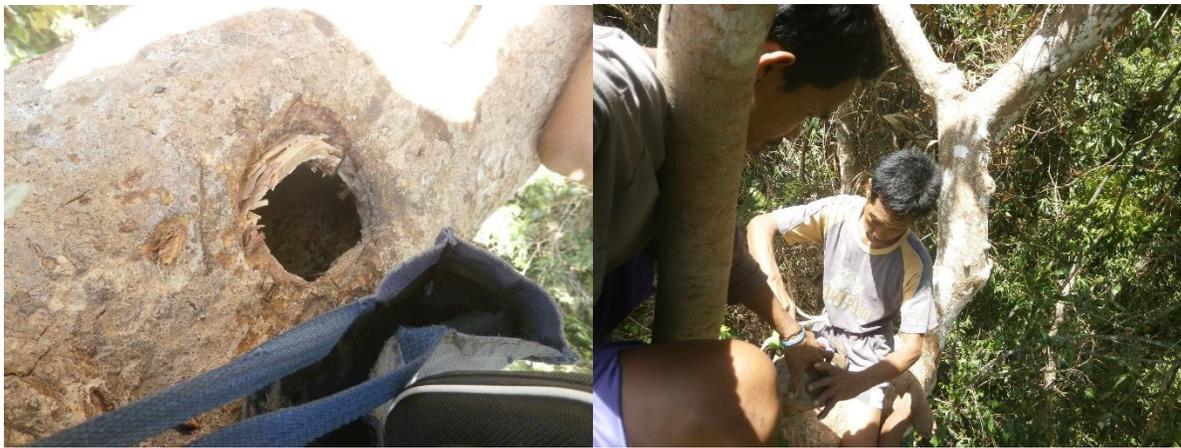


Figure 20. Preparation of fallen natural nest cavity (left); waterproofing of nest cavity (right: Photos: M. Plazos)

Capacity building for stakeholders and conservation education

On January 26 a meeting of the Local Protected area Committee was held in Dumarán. Topics were the pending release of seven cockatoos and the adoption of the Critical Habitat in a resolution by the municipal council of Dumarán.

On June 18, the 14th Kalabukay Festival was held in Dumarán. Participants were students from the local elementary and high school. Activities conducted included a parade with mascots, quiz bee, as well as colouring, oration and environmental chant contests.



Figure 21. Colouring contest (left) and mascot hauling (right) during Kalabukay Fest (Photos: M. Plazos)

Buffer zone restoration around existing cockatoo reserves and creation of forest corridor connecting the two existing cockatoo reserves continued

Preparation of seed bags and collections of seeds and wildlings continued throughout the dry season from January to May. Due to wet weather it was still possible to plant 200 seedlings in the Omoi reforestation site. From June to August, 14,136 trees were planted in the corridor between the two cockatoo reserves. By end of the reporting period, still 18,460 seedlings were in the nursery.



Figure 22. Aspect of nursery in Omoi Cockatoo Reserve in April (left); tree planting in bamboo grove in July (Photos: M. Plazos)

Constraints and measures taken

- Deputation of wildlife warden has to be done annually and is a tedious process. This also applies for other project sites with warden schemes. Follow-up with at all levels of DENR office is time-consuming and sometimes frustrating.
- Tameness of released cockatoos remains a problem. However, due to information campaigns of wardens, locals routinely inform KFI, once tame birds show up in their farms, so that birds can either be recaptured or scared off.

Objective 4: Education and research at the Katala Institute

Captive management of Philippine Cockatoo and other highly threatened species continued through employment and training of zookeepers and volunteers

In January and February, our zookeeper Angel travelled with the seven cockatoos intended for release to Dumaran. Aside from taking care of the birds in the pre-release aviary, she also instructed wildlife wardens in captive bird management.

Two nestlings were rescued from Rasa with heavy mite infestation. They were treated and handfed until recovered. Both were returned to their nest cavities in early June, where they were accepted again by their parents.

One fledgling from this year's breeding season was turned over to KI by DENR-CENRO Narra office on August 21. The bird was very weak with an upper leg injury. With 240g it was slightly underweight. It was treated with antibiotics and handfed, but did not recover and died ten days later.

Also on August 21 an adult female cockatoo was rescued from Puerto Princesa with a leg wound probably caused by an airgun. The wound was treated, and antibiotics were given for one week. The bird was able to feed without assistance. It recovered well and was successfully released back to the Iwahig site in September.

All cockatoos in long-term care were in good condition. Environmental enrichment was continued to prevent stereotypical behavior, however feather-plucking remained a problem with three of the cockatoos from the 2005 batch. We are taking care, not to expose other birds to those, since we already experienced that this habit might be copied by new arrivals.



Figure 23. Rescued cockatoo after checking for mites (left); cockatoos in viewing aviary (Photos: P. Widmann)

Educational trail, enclosures and visitors facilities upgraded

During the reporting period, eight groups comprising a total of 189 participants were instructed in native tree propagation and cockatoo monitoring techniques. This course caters to locals of Narra who want to participate in the volunteer scheme to record cockatoo

movements and to restore foraging habitats in Narra town proper. Groups consisted of village officials, blue and green guards (wildlife wardens deputized by DENR for coastal and forest resource protection), and students of Narra and the neighboring municipality of Aborlan. The pond dipping module is currently the most refined course on offer in Katala Institute; thanks to the equipment purchased with this project and the enthusiasm of KFI staff to explore the aquatic life in KI. We added a component on dragonflies and prepared a simple identification guide for the eight most common species found in the area. Within the reporting period 147 participants in six student groups from schools in Narra and Aborlan underwent introduction into pond dipping. An additional five teachers and six staff of KFI were trained as resource persons.



Figure 24. Identification of organisms sampled from KI ponds (left); demonstration during tree propagation training course (right: Photo: P. Widmann)

The landscaping plan for an arboretum featuring 'Island Floras' was finalized. The area was subdivided into six thematic groups, representing tropical island regions around the globe: Madagascar, Caribbean, South Pacific, Oceanic Philippines and Wallacea, New Guinea and Sundaland. All the remaining planting areas within the compound are reserved for native or endemic species of Palawan. Planting lists have been developed with focus on palm species, and particularly such of global conservation concern. According to the plan, the arboretum was laid out around a ca. 150 m long loop trail, whereas the planting area comprises ca. 1,100 m². Landscaping was done from April to June with the aid of a backhoe and manually. This included the excavation of a central pond area and the elevation of the trails.

The existing tree nursery has been expanded by ca. 120m² and backfilled with mother soil from the area and rice hull to allow for better drainage.

During the 2017 Katala Festival, 288 seedlings were planted within the Katala Institute and at a cockatoo foraging area in the coastal plain of Narra. Within the reporting period, 2,551 trees were planted. At the end of the reporting period 2,303 seedlings in 20 species were present in the nursery.

A brochure was printed advertising Katala Institute and activities offered (Annex 1). The facility can now also be found in Google maps under the name 'Katala Institute'.



Figure 25. Before (left) and after (right) establishment of arboretum (Photos: P. Widmann)



Figure 26. Planting of palm landscape specimens (Photos: P. Widmann)



Figure 27. Planting of tree seedlings during Katala Festival (Photos: P. Widmann)

In parts of the compound which are reserved for Calamian Deer *Axis calamianensis*, hills were created which serve the double purpose of offering deer refuge during temporary flooding, but also as sites for planting of tree species typical for the drier open woodlands of northern Palawan. A 1,800m² area was fenced as one of two enclosures for this endangered deer species.

A total of 120m comprising 24 spans of perimeter fence was constructed, mainly to prevent grazing cattle from entering the planted area. The fence consists of a cemented foundation and cement posts and will be equipped with interlink.



Figure 28. Pond excavation in deer enclosure (left); excavation for deer perimeter fence (right; Photos: P. Widmann)

Forest rehabilitation and protection site in Apis, Aborlan

This forest patch of ca. four hectares was previously purchased by KFI with funds from the Stadtholding Landau in der Pfalz, Germany. It represents one of the last remaining dipterocarp residual forests stocking on limestone in the Sulu coastal plain of Palawan. Scientists from the Western Philippines University identified at least 48 woody plant species in the location of which six were threatened and four were endemic to Palawan. Total biomass was estimated to amount to 46.7 Mg per ha (ci \pm 11.8) and carbon stock to 21 Mg per ha (ci \pm 5.31). The seedling bank for the critically endangered *Dipterocarpus grandiflorus* was considered sufficient to allow for regeneration into a mature dipterocarp forest if left undisturbed.

Constraints and measures taken

- Ground water levels in KI during the rainy season were very high throughout. Some of the planted trees die because of drowning and need to be replaced once water levels go down again.
- Monitoring of the Apis forest patch is difficult, because of the activities of lawless groups in the area. We are in cooperation with relevant authorities.

Other highlights

Other reported wildlife within the reporting period:

Brown Hawk-owl *Ninox scutulata* (IUCN: Least concern)

Two out three hatchlings fledged successfully from one nest in Omoi Cockatoo Reserve, Dumarán.



Figure 29. Two live and one mummified hatchlings of Brown Hawk-owl (left); adult Brown Hawk-owl defending nest (right; Photos: M. Plazos)

Blue-naped Parrot *Tanygnathus lucionensis* (IUCN: Near-threatened)

Seventy-two and ten pairs produced 150 and 21 fledglings in this year's breeding season on Pandanan and Dumarán respectively.

Blue-headed Racquet-tail *Prioniturus platenae* (IUCN: Vulnerable)

Eight pairs produced 19 fledglings on Dumarán.

Palawan Hornbill *Anthracoceros marchei* (IUCN: Vulnerable)

Six breeding pairs were recorded from Pandanan. Three pairs produced six fledglings on Dumarán.

Cooperation and advocacy affecting more than one project site

- PCCP is beneficiary of the "Zootier des Jahres" (zoo animal of the year) campaign of German zoos which runs from April 2017 to March 2018. This year's species group selected for the campaign are cockatoos.
- In January we assisted a field team of the National Mapping Authority (NAMRIA) in the ground-truthing of land use forms in Palawan. In the past we came across misclassifications in some of our project sites, particularly on Rasa where the intact coastal forest was classified as perennial crop. We brought this to the attention of NAMRIA, and they rectified the error for Rasa, but other misclassifications still persist.
- KFI, together with Wildlife Protect is involved in comprehensive efforts for wildlife conservation, with focus on wildlife trade and wildlife habitats, together with PCSDS and DENR. Peter attended a first networking meeting on February 3.
- In March Anna and Peter contributed to the Climate Change Adaptation Plan in Narra by drafting the strategies for the priority area "Environmental and ecological stability".
- On March 30 we co-hosted a planning workshop with DENR for the update of the management plan for Rasa Island Wildlife Sanctuary.
- Dr. Anthony Lynam from the Wildlife Conservation Society conducted a training for SMART patrolling for KFI staff and assisted in the development of a data model specifically for the Philippine Cockatoo and Philippine Freshwater Turtles Conservation Programs.

- Throughout the year we were involved in planning activities for the protection of the Victoria-Anepahan Mountain Range, an extensive forest landscape in central Palawan, in cooperation with a number of CSOs and academic institutions in Palawan.

Publications

- Peter contributed a chapter on the Palawan Bearded Pig to an upcoming book on wild pigs and peccaries.

Awards

Within this reporting period a number of awards were received, the most prestigious being

- The Whitley Award (Green Oscars Award) 2017 was given to Indira for her work in the Philippine Cockatoo Conservation Program. The plaque was presented by Her Royal Highness Princess Ann during a ceremony in Royal Geographic Society, London on May 18. Other finalists came from Bolivia, Venezuela, South Africa, and India. A short video of Indira's work commented by Sir David Attenborough was presented.
- On May 31, Indira was recipient of a commendation from the Senate of the Philippines (Resolution No. 51) for her conservation work, particularly for the Philippine Cockatoo.
- On June 19, the Philippine Cockatoo Conservation Program received an award for best practices on the occasion of the 25th anniversary of the Palawan-specific law on the Strategic Environmental Plan. The award was shared between the Municipality of Narra and Katala Foundation.
- Also in June, Katala Foundation received the Governor's Award for Environmental Protection for the efforts to conserve the Philippine Cockatoo.
- On July 18, Indira received the Biodiversity Recognition Award from DENR for "championing conservation of Philippine biodiversity", together with two previous Whitley Award winners. This is the first Biodiversity Recognition Award afforded by the Biodiversity Management Bureau of the DENR.

Personnel and equipment status

Both service boats of the Rasa project site were dry-docked and repaired. The Katala boat was fitted with a new engine.

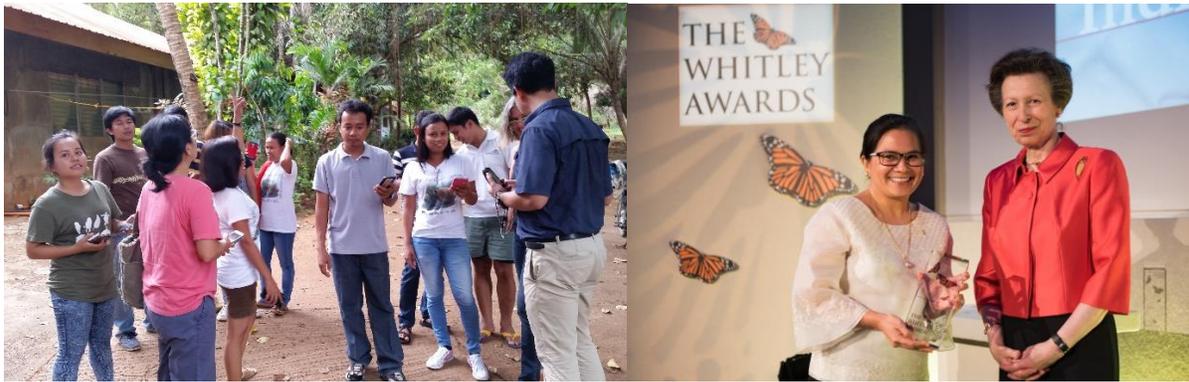


Figure 30. Practical training in the use of smartphones for wildlife patrolling with Dr. A Lynam (left; Photo: P. Widmann). Indira receives the 2017 Whitley Award from Her Royal highness Princess Ann (right: Photo: Whitley Foundation).

On July 19, a new set of board members for KFI were elected in Manila Polo Club, Makati. New set of officers are:

- Joel G. Jimenez - President
- Juan Miguel F. Zubiri - Vice President
- Glesselle Batin – Secretary
- Fr. Roberto M. Ebisa, SVD – Treasurer
- Adelito D. Posas, MD FPCP FPCCP - Press Relations
- Indira Dayang L. Widmann – Chief Executive/Operations Officer
- Deborah Villafuerte vanden Beukel – Trustee



Figure 31. PCCP staff after work; personnel status was adequate at this point in time (Photo: P. Widmann).

Literature

- Boussekey, M. 2000a: European studbook for the Red-vented cockatoo (*Cacatua haematuropygia*). St. Martin La Plaine, France. 53pp.
- Collar, N.J., N.A.D. Mallari, B.R. Tabaranza, Jr., 1999: Threatened Birds of the Philippines. The Haribon Foundation/BirdLife International, Manila, Philippines. 559pp.
- Dickinson, E.C., R. S. Kennedy & K.C. Parkes, 1991: The Birds of the Philippines. B.O.U. check-list no. 12. British Ornithologists' Union, Tring, UK. 507pp.
- IUCN 2015. The IUCN 2015 red list of threatened species. www.redlist.org.
- Jones, C.G., Merton, D.V., 2012. A Tale of Two Islands: The Rescue and Recovery of Endemic Birds in New Zealand and Mauritius. In: Ewen, J.G., Armstrong, D.P., Parker, K.A., Seddon, P.J. (Eds.), Reintroduction Biology - Integrating Science and Management. Wiley-Blackwell, Chichester, UK, pp. 33-68.
- Katala Foundation Inc., 2010. Proceedings of the National Workshop for the Development of the Re-introduction protocol for the Philippine cockatoo *Cacatua haematuropygia*, Puerto Princesa City. pp. 62
- Lacerna I.D. & P. Widmann, 1999: Biodiversity utilization in a Tagbanua community in Southern Palawan, Philippines: International Conference on Applied Tropical Ecology: Aspects on ecosystems management in tropical Asia, ViSCA, Baybay, Leyte.
- Lambert, Frank. 1994: The Status of the Philippine cockatoo *Cacatua haematuropygia* in Palawan and the Sulu Islands, Philippines. IUCN Species Survival Commission. IUCN, Gland, Switzerland and Cambridge, UK.
- Mallari, N.A.D., B.R. Tabaranza Jr. & M.J. Crosby, 2001: Key Conservation sites in the Philippines. Haribon BirdLife International, Manila. 485pp.
- Schoppe, S., 2013 (May). *From nearing extinction to flagship species – the endemic Palawan Forest Turtle Siebenrockiella leytensis*. Second Interim Report to Ocean Park Conservation Foundation Hong Kong. Katala Foundation Inc., Puerto Princesa City, Palawan, Philippines, 37 pp.
- Schoppe, S., 2013 (June). Critical habitat management on Dumarán Island, Palawan. Unpublished technical and financial quarterly report 3rd quarter, March to May 2013. Katala Foundation Incorporated (submitted June 2013)
- Sodhi, N., R. Butler, W. Laurance, & L. Gibson, 2011. Conservation successes at micro-, meso- and macroscales. Trends in Ecology and Evolution 1426. Elsevier Ltd.
- Widmann, P. 2001: Distribution and status of the Philippine cockatoo *Cacatua haematuropygia* in the wild. Unpubl. review and discussion paper. 32pp.
- Widmann, P., I.D. Lacerna & S.H. Diaz, 2001. Biology and conservation of the Philippine cockatoo (*Cacatua haematuropygia*) on Rasa Island, Palawan, Philippines. Proceedings of the 10th Annual symposium and scientific meeting of the Wildlife Conservation Society of the Philippines, April 2001, Silliman University, Dumaguete City, Philippines.
- Widmann, IDL, S.Diaz & A. Espinosa. Observations on Philippine cockatoo in Pandanan and Buliluyan, Southern Palawan, Philippines, 2008 in Widmann, I.D., P. Widmann, S. Schoppe, D. Van den Beukel & M. Espeso, 2008 (eds.): Conservation Studies on Palawan Biodiversity – a compilation of researches conducted in cooperation with or initiated by Katala Foundation, Inc., Puerto Princesa City, Palawan.

Annex 1: Brochure of Katala Institute

Activities

The grounds of Katala Institute (KI) are meant to showcase the uniqueness and diversity of island biodiversity. KI is not a mini zoo, therefore do not expect cage beside cage. We have few rescued animals in large enclosures simulating their natural habitat. Sometimes it takes time and patience to discover them!

Guided Tours in Katala Institute

Minimum number of six persons, maximum of 20 persons per group. However up to three groups can be accommodated at the same time.

Please make reservations prior to your visit to ensure we have staff to attend to you.

Other activities

We offer short courses in

- Pond dipping
- Birdwatching
- Wildlife Gardening
- Excursions to Rasa Island and surroundings

How to find us

From Puerto Princesa City (Junction 1):

- Take the southward-bound National Highway.
- Stay on this road for the next ca. 98 km.
- Before reaching Narra, look out for the police station on the right side of the road.
- Turn right (rough road) and follow ca. 200 m. You will see the gate of the Katala Institute.
- Public Shuttle: Take a van from the public market in San Jose (150 Pesos).



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Katala Institute Narra Island Life EXPLORED




Islands are Special

Islands are Threatened

Islands can be Restored

Islands cover less than six percent of the Earth's surface. Palawan has more than 1,500; the Philippines more than 7,100. Only two nations in Southeast Asia, Indonesia and the Philippines, share more than 22,000 among them. Nowhere else in the world can one find more islands in such confined an area!

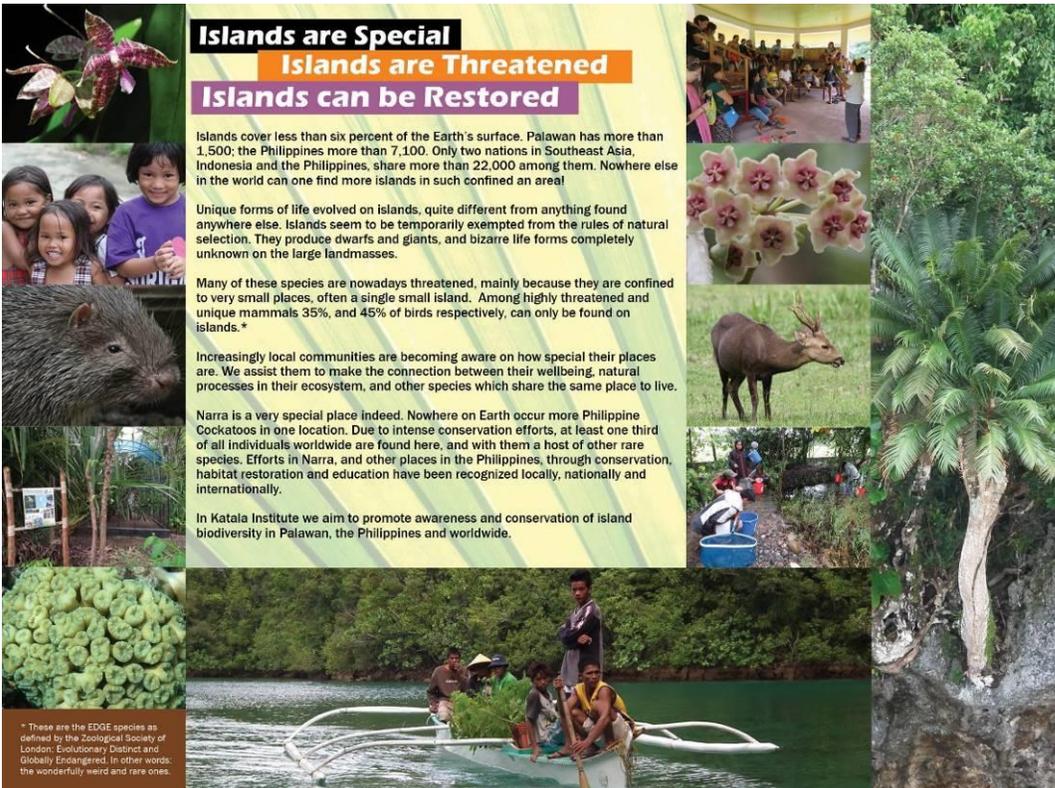
Unique forms of life evolved on islands, quite different from anything found anywhere else. Islands seem to be temporarily exempted from the rules of natural selection. They produce dwarfs and giants, and bizarre life forms completely unknown on the large landmasses.

Many of these species are nowadays threatened, mainly because they are confined to very small places, often a single small island. Among highly threatened and unique mammals 35%, and 45% of birds respectively, can only be found on islands.*

Increasingly local communities are becoming aware on how special their places are. We assist them to make the connection between their wellbeing, natural processes in their ecosystem, and other species which share the same place to live.

Narra is a very special place indeed. Nowhere on Earth occur more Philippine Cockatoos in one location. Due to intense conservation efforts, at least one third of all individuals worldwide are found here, and with them a host of other rare species. Efforts in Narra, and other places in the Philippines, through conservation, habitat restoration and education have been recognized locally, nationally and internationally.

In Katala Institute we aim to promote awareness and conservation of island biodiversity in Palawan, the Philippines and worldwide.



* These are the EDGE species as defined by the Zoological Society of London: Evolutionarily Distinct and Globally Endangered. In other words, the wonderfully weird and rare ones.